



a web-based venue for live performance

Draft User Manual for UpStage 1.0

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1 Introduction

UpStage is a web-based venue and tool for the real-time compilation of digital media into live performance, for an online audience.

People anywhere in the world can participate in live performance events by using standard browser software to access a web page, without having to download and install additional software and without needing to know anything other than a web address.

The concept for UpStage was developed by Avatar Body *Collision* (www.avatarbodycollision.org), a globally dispersed cyberformance troupe whose members have been experimenting with online theatre and performance since 1999. UpStage was born from the desire to reach a wider audience and to make it easier for audiences and performers alike to participate in live performance via the internet.

The software combines the different elements of cyberformance - web cams, audio, graphical avatars, images, text chat (and who knows what else in the future) - into a single web page. The audience simply point their browser to the web address at the appointed time, to watch and participate in the cyberformance.

UpStage is open-source software and is free to download. This manual provides general instructions for use; for further information and updates, please visit www.upstage.org.nz.

The development of UpStage was funded through the Smash Palace Collaboration Fund, a joint initiative of Creative New Zealand (www.creativenz.govt.nz) and the NZ Ministry of Science, Research and Technology (www.morst.govt.nz), and created with the support of MediaLab South Pacific (www.medialab.co.nz).

2 Project Team

The project was initiated and driven by Avatar Body *Collision*, who are Vicki Smith, Leena Saarinen, Karla Ptacek and Helen Varley Jamieson. For more information, please visit www.avatarbodycollision.org.

The programme was written by Douglas Bagnall, who has a background in open-source development of online projects, ranging from 5K chess to a library cataloguing system, and he is also an artist. He is currently developing a film-making robot.

MediaLab South Pacific provided project management support and resources for the project. www.medialab.co.nz.

Many other people have contributed to the development of UpStage through encouragement, advice, testing, feedback, and simply believing that it was possible. The project team thanks every one of you.

3 UpStage Users – Audience & Players

3.1 Audience

For the audience, all that is required is a standard browser with the Flash Player plug-in and an internet connection. Obviously a highspeed connection will give better performance, but a good experience should be enjoyed over a 56KB dial-up connection.

3.2 Players

The Players are those who will use UpStage to devise and create performances. It is possible to do this with nothing more than what's required for audience (i.e. a browser with Flash Player plug-in). Web cams will require additional FTP software (see section 6.2).

Players can either have full access to make changes to the stages, or limited access so that they can perform on a stage but not make administrative changes.

4 Getting Started

To use UpStage to create your own live performances, you will need to download and install the server software on a web server. The software is free and open-source. If your server is operating through a firewall, please see the technical information regarding firewalls in Section 6.1 at the end of this manual.

4.1 Downloading the Server Software

Download the latest version of UpStage by going to:

http://sf.net/project/showfiles.php?group_id=97481

or if you have CVS by writing the line below in a terminal window:

```
cvs -z3 -d:pserver:anonymous@cvs.sf.net:/cvsroot/upstage co Upstage
```

You also need to download and install the following software if it's not already on your server:

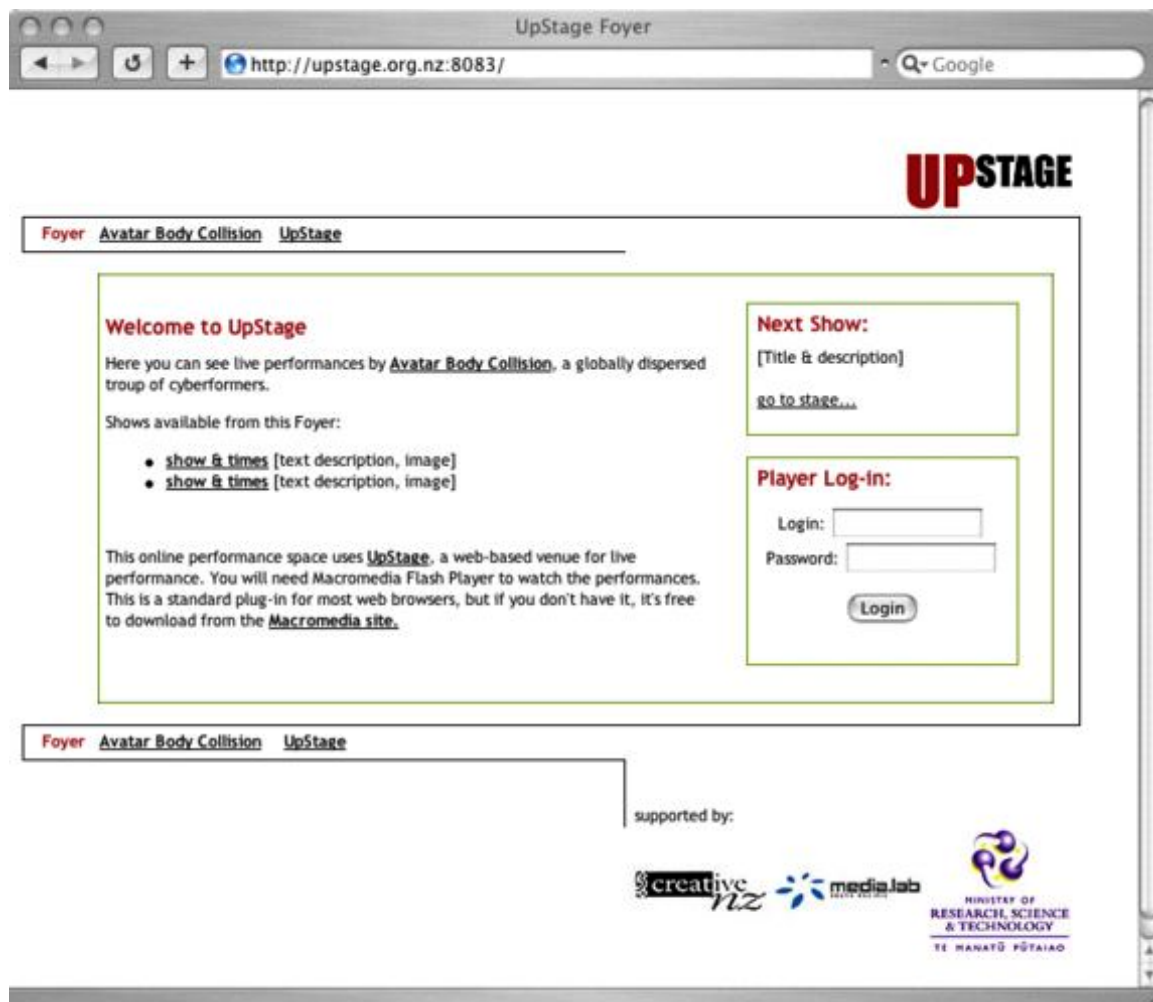
- β Python: <http://python.org/download/> (most web servers will already have Python)
- β Twisted (1.07 or higher should work): <http://twistedmatrix.com/products/download>
- β Festival (I've only tried 1.4.3):
<http://www.cstr.ed.ac.uk/projects/festival/download.html>

5 Using UpStage

5.1 The Foyer

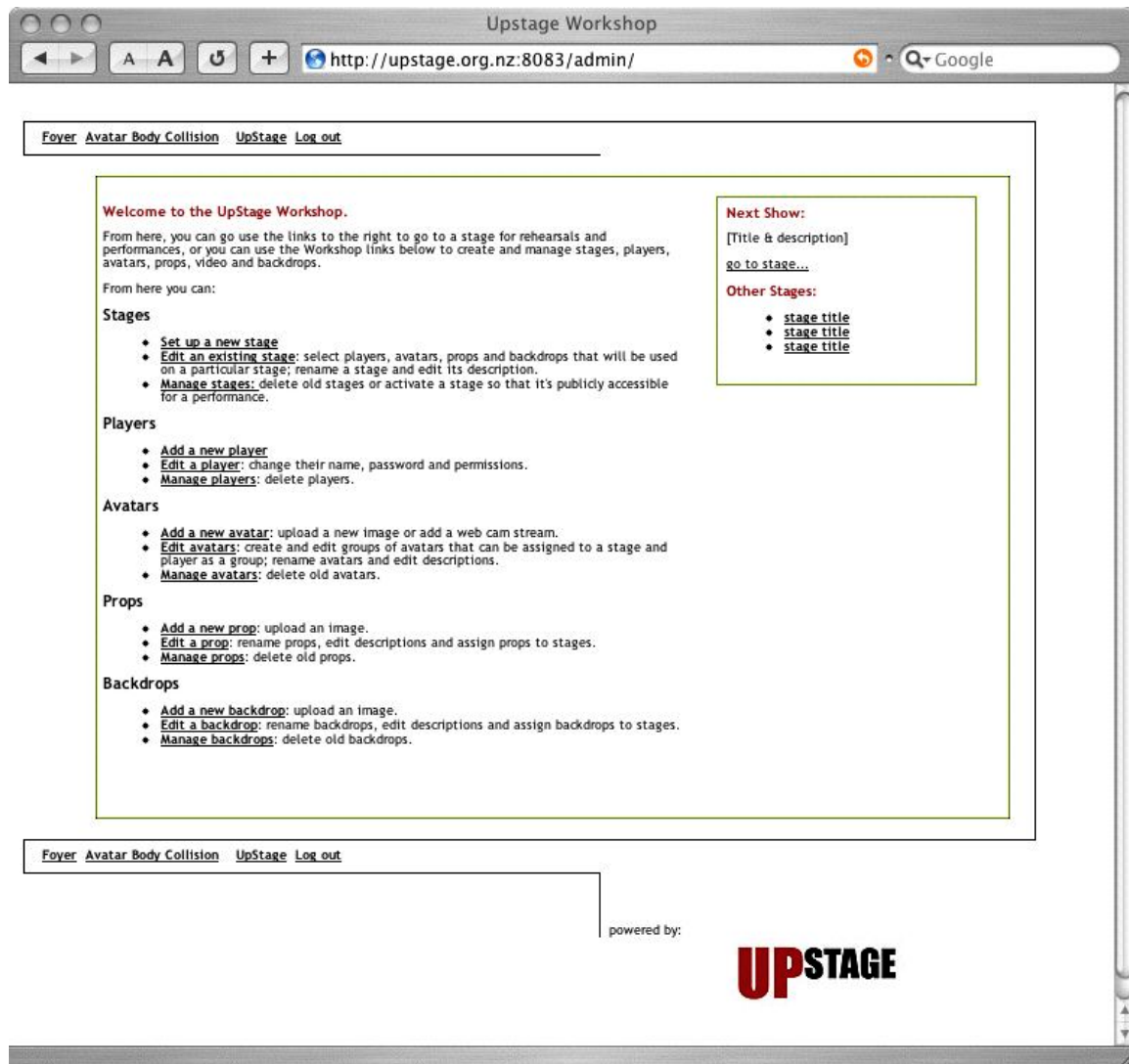
The Foyer (see screenshot below) is the first place that audience and players will arrive at when they come to your UpStage server. The server software comes with a default Foyer, which you can customise.

From the Foyer, players can log-in to enter the Workshop and the Stages, and audience members can choose from a list of available stages. Clicking on the name of the stage will take them directly to that stage. There are also links to Macromedia (the audience may need to download the Flash Player), the UpStage web site, and other links that you can add.



5.2 The Workshop: administration interface

Once you have logged in to UpStage, you arrive at the Workshop, from where you can either proceed directly to the Stages or choose from a range of administrative options. These options allow you to create and manage Stages, Players, Avatars, Props and Backdrops.



5.2.1 Creating and Managing Stages

Creating a new Stage

To create a new stage, click on the link and give your stage a name. This name will now appear in the list of existing stages. It won't be visible to the audience until you set it to be visible in the Manage Stages section, but it will be visible to players so that it can be used for rehearsals.

Manage Stages:

Use this section to:

- β associate avatars, props, sounds and backdrops to an existing stage;
- β rename the stage and edit its description;
- β set the functionality of the text chat, e.g. make the audience's text silent or spoken;
- β make stages visible to the public or closed for rehearsals;
- β delete old stages.

From the Workshop, click on the link "Manage Stages" and select the stage you wish to manage from the list of stages.

A list of the available players, avatars, props and backdrops that are available for that stage will appear. Use the check boxes to select objects for that stage, then click the submit button at the bottom. The page will refresh, showing the items that you have selected as checked. Use the page navigation to return to the Workshop or enter a stage.

When a stage is visible, the public entering through the foyer will see the name of the stage and be able to enter it.

5.2.2 Creating and Managing Players

This is where you can set up the log-in and permissions for a new player, or change those for an existing player.

Creating a new player

Create a log-in for a new player, and set their permissions – i.e. whether they have access to the Workshop or just to the Stages.

Manage players

Use this section to:

- ß change a player's log-in, name and permissions;
- ß delete players.

From the Workshop, click on the link “Manage Players” and select the Player you wish to manage from the list of Players.

5.2.3 Creating and Managing Avatars

In this section, you can upload new avatar images and video streams.

Creating a new avatar

Avatars can be still images in PNG or SWF format, or motion JPEGs from a web cam. GIFs and JPEGs will work, but not on all browsers (on some they will appear as black squares) so we recommend using PNG.

If you are setting up a new video stream, you will first need to have a web cam set up with FTP access to your UpStage server (see section 6.2 for details and recommended software).

Create your avatar using a graphics application such as PhotoShop or Fireworks, and export it to PNG format. It will appear approximately 2-3 times larger in UpStage, depending on the size of your browser window, so it's important to think about this when creating the original image.

Once your image or video stream is ready, follow the link from the Workshop to "Add a new avatar"; browse to find the appropriate file on your hard drive, or find your filename in the list of available video streams.. Choose a name for the avatar and click OK to upload or make the connection.

Go back to the Workshop and follow the link to "Manage Avatars" and you should see the name of your avatar in this list.

Manage Avatars

This screen shows the list of available avatars; you can change the avatar name and the voice it will speak with, and delete unwanted avatars.

Click on the name of the avatar you want to enter. You will see a thumbnail image of the avatar and information about the file. Choose from the drop down list of available voices.

5.2.4 Creating and Managing Props

In this section, you can upload new prop images. Props function in a similar way to avatars, but they can't speak. You can hold props and place them on the stage, move them around or leave them there.

Creating a new prop

Props are created in the same way as avatars, and can be still images in GIF, JPEG, PNG or SWF format. PNG is recommended.

From the Workshop, follow the link to “Add a new prop”, and navigate to the appropriate file on your hard drive. Choose a name for it and click OK to upload.

Manage Props

This screen shows a list of available props; you can change the prop name, and delete unwanted props. Once a prop has been assigned to a stage, its icon will appear in the Image Gallery at the bottom of that stage.

5.2.5 Creating and Managing Backdrops

In this section, you can upload new backdrop images.

Creating a new backdrop

Props can be still images in GIF, JPEG, PNG or SWF format. You can also use a video stream as a backdrop, but beware of overloading the server.

From the “Add a new backdrop” link in the Workshop, navigate to the appropriate file hard drive or select a video stream.. Name it and click OK to upload or make the connection.

Manage backdrops

This screen shows a list of available backdrops; you can change the backdrop name and delete unwanted backdrops. Once a backdrop has been assigned to a stage, its icon will appear in the Image Gallery at the bottom of that stage.

5.3 On Stage

UpStage's stages look slightly different for players and audience. The audience will see, via their web browser, the stage area and the text chat window. They will see the backdrops as you select them, and they will see the props and avatars that the players hold and move around the screen. They will also see and hear the avatar's speech, and can input text into the chat window; and in due course there will be an applause button.

What the audience won't see is the Wardrobe (top right hand corner) and Mirror, Controls (immediately below the Wardrobe and above the Chat) and Image Gallery (along the bottom of the screen). These areas provide tools for the players to use during performance – to change and move avatars, use props, paint and change backdrops.

The Avatar Wardrobe and Image Gallery display icons for the different avatars, props and backdrops that are available on this particular stage.

[screen shot coming]

5.4 Holding and Moving an Avatar

The avatars available on a stage appear as small icons in the Wardrobe. To hold a particular avatar, click on its icon in the Wardrobe. The icon will grey out and appear in your Mirror, the square area at the left of the Wardrobe. This shows you which avatar you are currently holding, and its greyed-out icon shows the other players that someone is holding that avatar.

5.4.1 Moving around the stage

Click on the stage area of the screen, and your full-size avatar will appear there. Click in another place, and it will move there, with the top right-hand corner of the avatar image corresponding to the point of your cursor.

Use the fast, slow and stop buttons (below the Mirror) to control the speed of your avatar's movement. Clicking on "fast" will cause the avatar to jump to the point on the stage that you click on. Clicking on "slow" will cause the avatar to slide slowly across the screen towards your cursor. Use the "stop" to stop and start the avatar mid-slide. If you're in slow mode, and make clicks very close to your avatar, it will move more slowly than if you click further away.

5.4.2 Controls

The Drop button will immediately remove your avatar from the stage. Park allows it to sit on the stage as if it were a prop, while you select and operate a different avatar. Use Clear to remove all unheld avatars and props from the stage.

Reset will take the stage back to its default settings.

If you have an animated avatar, for example a figure that can look left or right, use the function keys (F1, F2 etc) to toggle between the different images available for that avatar.

5.5 Holding and Placing Props

The props available to you in a particular stage will be shown as small icons in the Image Gallery. To hold a prop, simply click on it, and it will appear on top of your avatar. Click and hold down the mouse to drag it to where you want to position it on the screen.

5.6 Speech and Text Chat

To make your avatar speak, type into the text input field below the Chat window and hit enter. If there isn't a blinking cursor line there already, you will need to click the mouse there (but only click once, or your avatar will follow it there). If you aren't holding an avatar, you can't speak.

Your text will appear alongside your avatar's name in the text chat window as well as on the stage beside your avatar. It will also be spoken in the voice that you selected for your avatar in the edit section.

The audience can type into the text chat, but their text will only be spoken out loud if you have previously set it to do this. The default is for the audience chat to be visible but silent, intermingled with the players' visible and spoken text. As the audience don't log in, there are no names connected to the audience chat.

5.6.1 Saving the log

The text chat is automatically saved by the server, and can be viewed by adding "/log" in the address bar of your browser while you are on the stage. You can then save it either by saving that page as HTML or web archive, or copying and pasting the text into another application.

5.7 Changing Backdrops

The backdrops available to you in a particular stage will be shown as small icons in the Image Gallery. To change a backdrop during a performance, click on the icon and it will appear as the background.

6 Technical Information

Upstage is written in Python, using the Twisted framework for event-driven asynchronous networking (twistedmatrix.com). It doesn't require Apache (or MYSQL or anything else). The client is written in pure Actionscript, and is compiled using tools from the Ming suite (ming.sf.net), so there is no requirement for Macromedia software other than the player.

Words typed in by the performers are converted into speech using the Festival speech library (festvox.org/festival), and streamed to the clients as MP3s.

The software has been worked on for several months and contains maybe 8000 lines.

The server has been written on debian Linux, but should easily convert to run on other platforms. Python and Twisted are cross platform, but there's a line or two of shell scripts that tie in the speech synthesis.

6.1 Firewalls

Ports 7230 - 7233 need to be open for motion jpeg transfer.

6.2 Web cams

Players wanting to use video in UpStage will need to have a web cam with software that allows the player to FTP their video to the server as motion jpegs. Motion jpegs are recommended rather than streaming video, as this uses less bandwidth and with the same result as you would be likely to get from streaming video – in some cases smoother.

In the future, UpStage may be enhanced to incorporate this functionality into the server software, but at the time of writing this documentation, this has not been done.

6.2.1 Recommended Software

Freeware and shareware software is available for the major operating systems that can be used to FTP images from a web cam. Theoretically any software should work, however in the development of UpStage the following software was researched and tested. Please note that this is by no means all the available software, and as time passes there will be improved versions.

6.2.2 Recommended Software for Windows Operating Systems

At32 Comedy Webcam (version 1.01 at the time of writing this manual) is free web cam software that allows FTP for Windows 95/98/Me/NT/2000/XP. Its major disadvantage is that the image has an At32 logo on it; we are currently looking for alternatives.

“At32 Comedy Webcam is a small tray-based application with some often humorous special effects. Two methods for allowing your users to see your Webcam are provided. The first is via conventional automated FTP uploading to a server (you choose how often). The second (if you do not have access to an FTP server) is to allow the Webcam to act as an HTTP server, so people can see your Webcam via a Website address provided by the software. You can also save the images to hard disk (perhaps if you're already running an HTTP or FTP server) or archive them. It includes more than 50 post-processing effects such as a superimposing screen, overlays, captions, filters, and transformations. It runs discreetly in the background while you work without hogging system resources.”

<http://www.at32.com>

6.2.3 Recommended Software for Macintosh

Oculus (version 3.1 at the time of writing this manual) works on Mac OS 8.6-9.x and is also available for OSX (separate download); it's free to try, US\$20 to buy, and has some pretty nifty features.

“Oculus is a Webcam software that has been enhanced to include motion detection, time-lapsed movie creation, and remote image and movie cycling. It has flexible captioning options, including an unlimited amount of translucent text and pictures. It has options to

transmit an image to a remote FTP site or to save a file locally if you have a Web server running on your video capture machine. You also can add captions.”

<http://www.intlweb.com>

6.2.4 Recommended Software for Linux

WebcamD

http://webcamd.tuxfamily.org/index_en.html

“Webcamd can :

- * Take pics every X seconds
- * Add date & hour on pictures, with or without border
- * Make HTML page for it
- * Stop camera, putting an offline webpage
- * To take a pics when you want if the daemon is running
- * Upload pics by ftp on a remote server or create local file if a local web server is running
- * Customise HTML templates easily
- * Configure the programme easily with a small and simple configuration file”

6.2.5 Web Cam FTP Configuration

Once you have chosen and installed the appropriate web cam software, you will need to configure it to send the web cam images to your UpStage server. Following are the settings you will need:

Host: URL of your UpStage server

username:

password:

filepath: images/name.jpg

Port 21

6.3 Speech

UpStage's speech is generated by the Festival Speech Synthesiser, developed at the Centre for Speech Technology Research at Edinburgh University (<http://www.cstr.ed.ac.uk/projects/festival/>).

You can install additional speech plug-ins on your server to extend the range of voices available to the avatars.